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ABSTRACT

The basic ideas of the project described in this paper are to establish Internet connections to libraries in developing countries, to give access to information and to organize training of staff. Technical solutions with radio and microwave Internet connections have been established. Access to on-line journals has been established by the PERI (Program for the Enhancement of Research Information) program for developing countries. In a milieu without tradition or resources for printed bibliographies the Internet can be used for reference work. It gives the librarians new possibilities and support. Experiences in Ghana are related. (Contains 11 references.) (Author/AEF)

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"Reference work in a library system without national bibliographies and union catalogues."

Internet as a tool for reference work Experiences from the IFLA/Danida trial project in Ghana

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U.S. DEPARTMENT OF EDUCATION
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Abstract:

The basic ideas of the project are to establish internet connections to libraries in developing countries, to give access to information and to organise training of staff. Technical solutions with radio and microwave internet connections have been established. Access to on-line journals have been established by the PERI-programme for developing countries.

In a milieu without tradition or resources for printed bibliographies the internet can be used for reference work. It gives the librarians new possibilities and support searching of information to the users.

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The start of the project
The basic ideas of the project were formulated at the IFLA Conference in 1993. A group of forward looking people from the United Kingdom, Norway, Sweden, Germany and Denmark saw the Internet as a possibility to give access to information in developing countries. For many years resources for libraries in developing countries had been cut down to a minimum. The libraries were not able to buy books and journals for their users. The question was: If internet and digitised information were available for the libraries and training of staff was organised - would some of these problems be solved?

The group formulated the basic project paper and the project was accepted by the Section for Document Delivery and Interlending as a trial project. The basic elements in the project were set up:

- electronic network links
- favourable agreements with document centres
- training of staff

The question was also – can the experiences from this trial project be used in other developing countries.

The next step was to find money to finance the project. Director Niels Mark from the State and University Library in Denmark succeeded in getting support from Danida, the Danish International Development Assistance, and a preparing seminar was arranged in Ghana in April 1996. That was organised in co-operation between the Danish Project Group and staff at the Balme Library in Ghana. Balme Library is the library for University of Ghana, that is the oldest university in Ghana. After the seminar the project took off and five university libraries and one information institute have been involved in the project (page 7). In Ghana a Steering Committee with members from all the involved libraries was organised with the librarian at Balme Library as chairman.

We started with training of staff. Six Ghanian librarians were trained at university libraries in Denmark, and they visited library co-operatives and information centres in the UK. That was in 1997. Several workshops on internet searching have been arranged in Ghana for library staff and for library users. Two computer specialists from Ghana have attended a network course in Denmark. Technical training for library staff has been organised by the system analyst at the Balme Library.
After a rather long and frustrating time with technical problems, a strong satellite internet connection from University of Ghana has been established. A library network has been installed and the involved libraries have access to the internet through this connection. Favourable agreements with access to some full-text databases have been negotiated by INASP, International Network for the Availability of Scientific Publications in London. This programme for access to information is called Programme for the Enhancement of Research Information, PERI. (more information : http://www.inasp.org.uk/peri)

Document Delivery until now
Even though we have had many technical problems in the project, internet connections from six places have been established. The connections are not stable from all sites, but we started with document delivery in the old fashioned way. Librarians in Ghana have sent requests for copies of periodical articles to five Danish university libraries. The requests have been sent by e-mail, and the copies have been returned to the Ghanian libraries by ordinary mail. About seven hundred requests a year have been sent to the involved university libraries in Denmark. The Danish libraries have been able to send copies of fifty percent of the wanted articles. In this way we have worked for four years.

The tools for the reference librarians were very few. National biblioraphies and union catalogues have not been worked out and published. The Balme Library have some CD-rom, but the newest CD-rom were from 1996. The users have had no or few possibilities to search the newest information. In 2001 the PERI programme has been started. It gives access to more than 5000 full-text online journals in science, technology, medicine, the social sciences and the humanities. It gives the reference librarians as well as the

academics at the universities the possibility to make searches and print out the articles. Payment for delivery of articles, that are not available in full-texts, is included in the programme..

The resources on the internet

Information free-of-charge

With the internet connections established the users in Ghana have the same possibility for communication and information search as we have in the developed world. Classical texts, public information, information from governments, parliaments, laws, national and international organisations, some conference papers and some working papers from universities. Many reference tools like dictionaries, encyclopaedias, directories, bibliographies, catalogues, archives, gateways are available. Some publishers also give access to full-text articles free of charge. The problem is not to find information, the problem is to find the best information, to follow what is available and have an overview of the resources. *But for the libraries and the users in developing countries it will still be a problem to get access to information, that you have to pay for.*
That the internet can be used for communication is also important. You can find people and organisations, that can help you in your searching of information. You can exchange experiences with your colleagues from all over the world.

Information on Ghana

Also in Ghana a lot of information is available on the net. On the homepages of newspapers you can find the daily news. Information on all issues from the country is available. You can find cultural information, information on organisations, universities, political information etc. For instance the results from the last election in 2000 were available shortly after the election.
INSTI, Institute for Scientific and Technological Information, is involved in the project. This institute collect scientific information published in Ghana as well as information on Ghana published in other countries. You can search in their on-line catalogue. The institute also act as a document delivery centre. So Ghana *is* a part of the globalized world.

Experiences from the project

Communication

When you begin to co-operate with colleagues many routines have to be organised. Good communication is necessary, and our communication with the Ghanian colleagues has been very good just from the beginning - from the planning of the first seminar in Ghana in 1996 and the planning and the organising of the first visit in UK and Denmark in 1997. The colleagues in Ghana have been very interested in co-operating in the project. Communication problems could turn up, but only when the internet connections were down. We have had good discussions and good exchange of experiences both by e-mail and at the seminars, that have been arranged in the project-period. I have communicated just as much with the Ghanian colleagues, as I have communicated with the colleagues in the office next to me.

Interlending

Interlending was a service at the Ghanian university libraries, but not many requests had been sent to other libraries. In the Balme Library in the beginning of 1990's less than one hundred items a year were borrowed from international libraries and none were borrowed from other libraries in Ghana. From one of the other university libraries about fifteen items a year were borrowed from other libraries, and about five items were loaned to other libraries.
Naturally the experiences with document delivery were not known to all the staff, who have been involved in the project. Many were inexperienced with searching, verification and location in printed bibliographies and catalogues. Naturally, if you have not had the opportunity to work with interlending in practice, the competence have to be build up. To "read" bibliographic information and to find the relevant information for a request - this routine has to be trained. The same is the case for the administrative routines with handling of requests. The experiences from a long tradition with searching of information and interlending, that we have in the developed world, might not be the case for the colleagues in the developing countries. It means, that

the staff involved in the project have to learn the old fashioned routines at the same time, as they have to learn new routines with searching on the internet.

The internet connections
Some of the involved libraries had only few telephone lines. One of the libraries had no telephone at all. It has been too expensive for our project to install telephone lines and satellite connections. So our technical consultants at Center for Tele-Information at the Danish Technical University have looked for some other solutions for the internet connections. Instead of telephone-lines they have developed radio communication connections. Telephone lines are expensive, and when the radio communication connections have been installed, the libraries have only few running costs for their internet connections. So in the project we have tried different technological solutions. We hope that these radio connections will ensure a sustainable project after we have finished the project.
Technical solutions for remote libraries:

Technical solutions	Capicity	Distance to centre	Costs of components
HF radio	2,4 Kbit/s	App. 120-600 km	$ 12.000
VHF/UHF solution	33 Kbit/s	App. 60 km	$ 10.000
Line-Of-Sight microwave	2 Mbit/s	App. 15 km	$ 6.500

The idea was to test and implement cheap solutions for the connections. The project has a limited duration, so the running costs and costs for maintenance should be low. Depending on the distance to the centre, different solutions for the connections have been implemented.
The VHF/UHF connection has been implemented in one library, and we are optimistic about the functionality of this connection. The capacity can be improved, and the technicians still try to find solutions to this.
The Line-Of-Sight microwave connection has been installed in the Ghana Medical School Library, and it functions 90% of the time. It will also bee installed at INSTI. Both the VHF/UHF and Line-Of-Sight connections can be used for document delivery and searching on the net.
Unfortunately we have had many problems with the HF connection. One of the problems have been to get frequencies from the authorities, so it has been necessary to use test-frequencies. In practice we have not been able to use the HF-connection for information search. We know that it *is* able to connect to the internet, but the capacity is low and the technology has been too unreliable. Hopefully can this technology be used for voice-communication and e-mails. So in regions with no telephone-lines this solution could be used. Two of the libraries, that have tried the HF-connection, can be connected to the internet by a fibre-ring established in their region. For University for Development Studies in the North, we hope that a satellite connection to the centre on Legon can be established. But it is not possible for our project to support this connection.

Technical and organisational problems
It is no secret that we have had more technical problems than we could imagine from the beginning.
The Balme Library is the centre for the library network, and this library have had a rather good internet connection most of the time. The first connection for all the universities was a connection with the capacity of 64 Kbit/s. This connection was soon overloaded, and in 2001 a strong satellite connection has been established from the University of Ghana to an internet-provider in Denmark.
From the remote sites the main problem has been to make the connections stable. When the connections are slow or not working, it is difficult for the staff in the libraries to find the fault - it may be at the centre or it may be a local fault. Or the net is just overloaded. The problems may also come from breakdown of the power supply. That was a problem in Ghana a couple of years ago.

To handle computers is a competence, that is necessary to improve. It is also complicated to run and manage networks. The IT-staff has to monitor the functionality of severs and has to repair as soon as possible. It means that staff in the libraries depends on IT specialists. Too few IT- and network specialists are attached to the universities, and IT-skilled staff can get better wages in the private sector. I think that is a problem

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everywhere. As mentioned above it is difficult for staff in the libraries to find the faults, and the IT specialist at Balme Library has been overwhelmed with work.

The unstable internet connections have caused, that the implement plans have been delayed and revised several timer.

Conclusions

The ideas of the project were formulated because libraries in the developing countries had few resources for books and journals. The project is not a solution to all these problems, but it gives many resources to information to the benefit of the users.

The librarians in Ghana have difficult working conditions, and it is hard work to co-operate in a project like this. But the competence of staff has improved, and the position of libraries has been strengthened. Many ICT projects are going on in Ghana as well as in all the other African countries. All efforts will support the development in the region.

We could not have run this project without support from Danida. Danida has supported not only by funding but also with a strong interest to the ideas and visions in the project - the importance of information to developing countries.

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Involved university libraries in Ghana:

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Balme Library
University of Ghana Library
Legon

University of Cape Coast
Cape Coast

University College of Education of Winneba
Winneba

Kwame Nkrumah University of Science and Technology
Kumasi

University for Development Studies
Tamale

INSTI, Institute for Scientific and Technological Information
CSIR
Accra

Involved university libraries in Denmark:

State and University Library
Aarhus

The Danish Veterinary and Agricultural Library
The Royal Veterinary and Agricultural University
Copenhagen

The Danish National Library of Science Medicine,
Copenhagen University Library
Copenhagen

Copenhagen Business School Library
Copenhagen

National Library of Education
Copenhagen

Roskilde University Library
Roskilde

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The start of the project

- Basic elements in the project
  - electronic network links
  - favourable agreements with document centres
  - training of staff

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Involved university libraries in Ghana

- Balme Library, University of Ghana Library
- University of Cape Coast
- University College of Education of Winneba
- Kwame Nkrumah University of Science and Technology, Kumasi
- University for Development Studies, Tamale
- INSTI, Institute for Scientific and Technological Information

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Full-text databases

- INASP, International Network for the Availability of Scientific Publications in London
- Programme for the Enhancement of Research Information, PERI. (more information : http://www.inasp.org.uk/peri)

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Involved university libraries in Denmark

- State and University Library, Aarhus
- The Danish Veterinary and Agricultural Library, Copenhagen
- The Danish National Library of Science Medicine, Copenhagen
- Copenhagen Business School Library
- National Library of Education, Copenhagen
- Roskilde University Library

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